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ABSTRACT

The National Library Service (NLS) is developing a digital talking book and Braille book system for use by the blind and physically handicapped community. The following elements drive the design of the program: NLS offers a free library service; NLS is consumer-driven; NLS pays no royalties to copyright holders; the program is accessible to a wide variety of users; and the program's primary focus is the recreational and informational reading needs of patrons. Three assumptions have been made in planning for the next-generation talking book system: the system will be digitally based; the current cassette system will be in use for another seven to ten years; and a standard or slightly modified version of a widely-used consumer product/technology will be used to gain cost benefits of mass production. A National Information Standards Organization effort is underway to develop a standard to ensure compatibility of digital books, magazines, and playback equipment across national and agency boundaries. At the same time, four immediate tasks of the inhouse NLS group are: simulate a digital talking book using a personal computer; develop a computer-based life cycle cost analysis tool for the NLS system and candidate digital system; design and build a prototype digital collection accessing and archiving system; and design or select digital mastering and playback systems. (AEF)

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TECHNOLOGICAL DEVELOPMENTS IN THE DELIVERY OF BOOKS AND MAGAZINES

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by

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It is a pleasure to once again be here at the National Federation of the Blind convention and to be able to talk about books and our efforts related to publishing materials in a form accessible to you--the users of the program.

With me this week are Tom Bickford, Michael Moodie, and Lloyd Rasmussen. Debbie Brown is also here. We may all be found at or through the NLS exhibit booth.

Through the past year President Maurer and various NFB staff met on several occasions with me and NLS staff to pursue projects of interest--specifically copyright related digital book matters. All goes well, and we may have "big" news within a few months.

Of course, I cannot let this opportunity pass to mention Kenneth Jernigan. He is and will continue to be missed but, at the same time, he is still with us. As I write these notes, I feel President Jernigan next to me - guiding and advising - as you all know he could and can --

NOW

35.7 quadrillion bytes! Or, if you prefer, 35.7 petabytes. Why

should I, a man in reasonably good health and good humor, offer those of you joined together here in convention such a figure. I do so because in entering the digital age, it is apparent that "bytes" are everything. Everything, that is, except "hits."

There are bytes, kilobytes, megabytes, gigabytes, terabytes, petabytes, exabytes, zettabytes, and even yottabytes. One byte represents a single character. Ten bytes represent a single word, etc.

If we at the Library of Congress were digitalized last year and all our audio and braille magazines were available in digital formats, we would have been dealing with a 35.7 quadrillion byte situation.

Similarly, if we were digitized and counted a hit as every time a cassette track were listened to, or a disc placed on a talking-book machine, or a braille volume opened, we would be discussing more than 565 million hits.

So, when we talk about converting from our analog audio system to digital and to a digital braille format we must think in terms of bytes and hits -- among other mundane matters.

At NLS we are devoting considerable time and effort to develop and design a digital talking book and braille book system for use by the blind and physically handicapped community here in the United States. Five elements drive the design of our program and affect changes that may be considered. Some elements have a legal basis, others are long-standing policies, but all are core concepts that shape our planning for the future. The five elements are these:

One We offer a free library service! Just as sighted Americans and residents of the United States can use their public library at no cost, so NLS patrons are not charged to use our federal program. If playback equipment is needed, NLS supplies it. Readers may participate regardless of income.

Two We are consumer-driven! NLS involves representatives of organizations serving blind people as well as our network libraries in deliberations leading to all major program decisions. We believe consumer involvement is critical to maintaining an effective and responsive library service.

Three We pay no royalties to copyright holders! In return, access to

recorded books and magazines must be limited only to eligible users. Currently this is accomplished by using non-standard cassettes and records.

Four Our program is accessible to a wide variety of users--from mildly visually impaired to totally blind, from children to the elderly (most patrons are over sixty-five), from active readers to passive ones, from the physically able to the severely disabled and multiply handicapped.

Five The program's primary focus is the recreational and informational reading needs of patrons--more than the needs of professionals and students.

Planning for Transition to a Digital System

We have made three assumptions in planning for the next-generation talking book system:

One Our first assumption is that the next audio system will be digitally based.

Two Our second assumption is that the current 4-track, 15/16 ips cassette system will be in use for at least another seven to ten

years. Eventually, we expect that a declining market for cassettes will lead to higher costs and limited availability for cassettes, playback unit components, as well as for duplication equipment and supplies. Simultaneously, the cost of digital system components will be dropping. However, we do not expect to see significant cost advantages for digital applications for at least ten years.

Three Our third and final assumption is that we will use a standard or slightly modified version of a widely used consumer product or technology to gain the cost benefits of mass production. We do not have a large enough market or sufficient research dollars to pursue a technology out of the mainstream.

Given these assumptions, how do we get from where we are to where we want to be? Such a conversion as we anticipate is a complex undertaking. When NLS changed its delivery medium from phonograph records to cassettes, only the medium, its mailing container, and its playback device were replaced during the transition; otherwise, the system stayed the same. Now we are planning a

change that will certainly affect many aspects--possibly every aspect--of our talking-book system, from recording through distribution. Very little in our current system will remain unchanged. We should not underestimate the complexity or difficulty of such an undertaking. I will not enumerate them but will be pleased to discuss them following this presentation.

NLS has identified twenty tasks that will be required in the design and implementation of a next-generation talking-book system. These will not be detailed today.

Development of a Standard for Digital Talking Books under the Auspices of the National Information Standards Organization (NISO)

Goal: Develop a standard to ensure compatibility of digital books, magazines, and playback equipment across national and agency boundaries.

Makeup of Committee: 30 users, representatives from organizations of and for the blind, talking book producers, and hardware/software firms:

Association of Specialized and Cooperative Library Agencies/American Library Association
American Council of the Blind
American Foundation for the Blind

American Printing House for the Blind
Audible, Inc.
Blinded Veterans Association
Canadian National institute for the Blind
DAISY
Eva-Tone, Inc.
Hadley School
Industry Canada
LaBarge, Inc.
NCR Corporation
National Federation of the Blind
National Institute of Standards and Technology
National Library Service for the Blind and
Physically Handicapped
Productivity Works
Recording for the Blind & Dyslexic
Talking Book Publishers, Inc.
Telex Communications, Inc.
TRACE R&D Center
VisuAide, Inc.
World Blind Union

Work progresses.

Digital Audio Development Project Committee

At the same time that the NISO effort is underway, an inhouse NLS group has been formed. It has four immediate tasks:

One Simulate a Digital Talking Book (DTB) using a personal computer. This will:

- Allow NLS to test patron interest in different features and equipment;

- Test different user interfaces; and

- Build several simulations to reduce risks.

Two Develop a computer based life cycle cost analysis tool for the NL system and candidate digital system:

- Met with various life cycle cost experts at the Army Corps of Engineers and GAO;
- Used information to draft a request for proposal; and
- Received time schedule for contract award.

Three Design and build a prototype digital collection accessing and archiving system:

- Need to digitize entire talking book collection;
- Archiving System (short term vs. long term system; side announcements); and
- Preparing audio files now for later navigation on digital medium.

Four Design or select digital mastering and playback systems:

- Install and exercise a digital mastering system in the NLS Studio;
- Install and exercise a digital system at the Multistate Center

East for duplication of network-produced books and magazines;

- Help studios develop software tools for digital domain; and
- Develop and maintain software to allow users to play a DTB based on NISO features.

One major effort for Digital Audio Development is developing a Life Cycle-Cost Analysis Tool. This is being contracted as I speak. Again, this is too complex to describe here but certainly Michael and I will discuss it after this session.

As I mentioned earlier, Mr. Moodie, our R&D Officer, has come to the convention with me this year. Your program holds a listing of where you may meet with him and with me this afternoon.

In areas other than digital, you will find our **What's New? 1999** brochure at our exhibit booth where you will also find our staff.

I now conclude my remarks by saying thank you for having me, thank you for your patience, and I look forward to meeting you this afternoon in the room assigned to Michael and me or at the NLS exhibit booth. Thank you.